REMARKS

Claims

Applicants have amended independent claims 1 and 3 to disclose more clearly that the media servers of Applicants' edge node can be changed while the edge node is running ("added or removed during operation" in claim 1and "during edge node operation, adding or removing" in claim 3). Applicants have also amended claim 3 to parallel claim 1 more closely. The precedent for these amendments is found on page 55 of Applicants' specification:

> "Media servers of the EN [edge node] are usually connected to the load balancer (e.g., L-4 switch) to distribute the load equally to the multiple servers. Since the media servers do not hold the content, the servers may be added or removed instantly (e.g., on-the-fly) while the EN is operating. For example, if the number of end users is increased during operation of the EN, the servers may be added instantly. If the number of end users is decreased during operation of the EN, the servers may be removed instantly. As will be evident to those skilled in the art, such scalability is possible because the load balancer will balance demand over whatever number of servers exist on the EN, and the shared storage means may be added or removed without affecting the availability of particular content files. The inclusion of the load balancer and shared storage provides additional benefits by allowing user demands upon the EN to be intelligently spread among available servers, thereby preventing the EN from having to worry about which content files should be stored on which particular servers."

This passage also explains how the load balancer and shared storage are essential to the implementation of scalability in Applicants' edge node. By storing content in the shared storage and not on the media servers, no single media server is essential to edge node operation.

These amendments are also responsive to the Examiner's concerns regarding the composition of the VLANs expressed in the Section 112 rejection of the last office action (see discussion below).

Lastly, Applicants have added dependent claims 4 – 6 to detail the functionality of the controller in currently amended claim 1. Pages 31 to 46 of the specification explain in detail how the controller (including data manager software resident on the controller) operates in processing content, positioning content on the edge node, and executing commands.

Claim Objections

The Examiner has objected to the use of "NOC" and network operations center, stating "No where in the claims or specifications does it explain as to the specific functions of the NOC" and asking "What contents are being received from NOC?"

Applicants respectfully disagree with the Examiner's assertion. Page 10 of Applicants' specification provides the definition of NOC as network operations center and also states "Multimedia content generated by CP [content provider] 100 is sent to NOC 300 via VN [virtual network] 200. The content is processed in NOC 200 and uploaded to satellite 400." Pages 13 and 14 of Applicants' specification include a section "Network Operations Center" detailing the function and operation of the NOC. Pages 22 -26 contain a second section detailing NOC operation. Further information on NOC operation can be found throughout Applicants' specification, for example on pages 17 – 19 which detail how content is collected from a content provider and delivered to end users.

By indicating a number of descriptive sections in Applicants' specification on NOC operation and content processing, Applicants believe that they

have shown a sufficient basis for the use of network operations center and NOC in the claims.

Section 112 Rejections

The Examiner has rejected claim 1 under Section 112 because the limitations "the public and private VLANs" in line 20 and "private VLAN" do not have sufficient antecedent basis (the Examiner indicated that "private VLAN" should be preceded by "the"). The current amendments to claim 1 have modified these limitations, thereby overcoming the rejections.

The Examiner has also stated that "it is not clear from the drawings, as to what private and public VLANs are comprised of?" Currently amended claim 1 more clearly defines the composition of the private VLAN and the public VLAN. The textual basis in Applicants' specification can be found on page 29 which states, "Receiving router 514 and controller 540 are connected to [private] VLAN 550, while router 528 and switch 526 9 (e.g. an optional load balancer) are connected to [public] VLAN 560." The designations of VLAN 550 as private and VLAN 560 are found on the previous page.

Applicants believe that these changes are sufficient to overcome the Examiners' Section 112 rejection.

Section 103 Rejections

The Examiner has rejected claims 1-3 under Section 103(a) as being unpatentable over Hartsell et al. (US Application Publication 2003/0236745) in view

of Voit et al. (US Patent No. 6,829,250). In his rejection the Examiner has repeated his arguments from the Office Action dated June 1, 2005 and concluded that Applicants' arguments in the filing dated September 1, 2005 were not persuasive. Applicants respectfully disagree with the Examiner's rejection and will present additional facts to demonstrate their invention is novel and non-obvious over the prior art.

In concluding that Applicants' September arguments were not persuasive, the Examiner only listed Applicants' statement regarding the amendment made at that time and failed to reply Applicants' arguments regarding Voit's VLANs and the combination of Hartsell and Voit. MPEP 2142 requires the Examiner to consider all evidence including facts submitted by rebuttal evidence,

> "When an applicant submits evidence, whether in the specification as originally filed or in reply to a rejection, the examiner must reconsider the patentability of the claimed invention. The decision on patentability must be made based upon consideration of all the evidence, including evidence submitted by the examiner and the evidence submitted by the applicant. A decision to make or maintain a rejection in the face of all the evidence must show that it was based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was reached, not the conclusion itself." *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990)

Applicants' previous response offers evidence that Voit's private VLAN is very different from Applicants' VLAN. In the Examiner's own citation from Voit: "The nodes of network 13 transport the packets for the VLAN members only to resources that are members of the identified VLAN. In this manner, the capability exists for creating logical workgroups of users and their shared resources

(servers, printers, etc.), that may be physically separated from each other." (Voit, col. 18, lines 54-59, emphasis added)

Linking workgroups of users is a completely different level of connectivity than the private VLAN of Applicants' edge node. Users are discrete entities that operate independently of each other, unlike the components of Applicants' edge node. They also are physically separated from each other. The private VLAN that joins them may span multiple locations in direct contrast to the single location for the internal private VLAN of Applicants' edge node. The geographically distributed nature of Voit's networks is evident in Voit's Figures 1-3, which are referenced in the Examiner's citation. They show his networks covering a number of locations. Furthermore, there is no suggestion in these figures or anywhere else in Voit of a private VLAN set up in one location. Constructing a private VLAN in one location as in Applicants' invention would be inconsistent with Voit's stated concept above of having his "workgroups of users...physically separated from each other." By physically separating the users of his private VLAN, Voit, therefore, teaches away from Applicants' internal private VLAN at a single edge node.

This difference cannot be ignored because the resulting combination of Hartsell and Voit would be very different from Applicants' edge node. If Hartsell and Voit were combined, the product would be a content delivery engine with a private VLAN that spanned multiple locations. Furthermore, neither Hartsell nor Voit give any guidance as to what elements of Hartsell would be included in the private VLAN or why. It is incumbent upon the Examiner to show that the

combination of Hartsell and Voit teaches or suggests all of the claimed limitations of Applicants' edge node as required MPEP 2143.03 ("All claim limitations must be taught or suggested"). By not detailing how the combination of Hartsell and Voit result in Applicants' internal private VLAN comprising "a receiving router and a controller", the Examiner has failed to meet this requirement.

It is also incumbent on upon the Examiner to show a proper motivation to combine Hartsell and Voit. The Examiner's stated motivation, "a more cost effective edge node and reduces latency in retrieving data from servers", fails this test because there is no relevant way to make the combination and there are many, many ways to make things "more cost effective" and "reduce latency". This generalized motivation to combine is equally applicable to any number of inventions, and provides no teaching or insight whatsoever into how to solve the problems the Applicants have addressed. It does not explain which of a myriad of techniques a person of ordinary skill in the art should combine to accomplish this well-known objective. In the words of the Federal Circuit – the motivation is not "particular[ized.]" Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1334 (Fed. Cir. 2002).

It was improper for the Examiner to conclude that the disparate components of Hartsell and Voit would have been assembled by a person of ordinary skill, like a jigsaw puzzle without instructions, with no motivation to combine them except the desire to make "a more cost effective edge node" and "reduce latency in retrieving data from servers".

Furthermore, these "motivations" alone do provide the insight to combine components correctly. A person could conceivably attempt to use any number of elements in a trial and error approach and never achieve the desired result.

Because, there are in infinite number of ways to "make a more cost effective edge node" or to "reduce latency in retrieving data from servers", this objective cannot provide a motivation to combine the references cited to arrive at Applicant's invention. The alleged "motivation" to combine the Examiner has relied on provides no guidance on what apparatus to use to arrive at the result or what methodology to follow.

Indeed, making a more cost effective edge node could also be accomplished by: using less expensive components, using electronics that operate at lower power, simplifying the edge node design, and combining functions to reduce the number of elements. Similarly, reducing latency could also be accomplished by shortening the path length for data, increasing buffer sizes, and using higher speed network circuitry.

All these solutions are suggested by the "motivations" to combine that the Examiner has relied on. These unfocused "motivations" provides no guidance whatsoever on how to solve the problem Applicant solved, and it cannot direct a person of ordinary skill in the art (who is deemed to follow conventional wisdom and does not seek to innovate[1]) to arrive at Applicant's invention.

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[1] Std Oil v. Am. Cyanamid Co., 774 F. 2d 448, 454 (Fed. Cir. 1985)("A person of ordinary skill in the art is also presumed to be one who thinks along the line of conventional wisdom in the art and is not one who undertakes to innovate, whether by patient, and often expensive, systematic research or by extraordinary insights, it makes no difference which.").

According to the Examiner the 'motivations" to combine these disparate references was that the combination "provides more cost effective edge node and reduces latency in retrieving data from servers." These conclusory statements, however apply to many, many inventions. That truism cannot negate the inventive step in this or other inventions. Finding a creative solution to a problem, using existing technology in a novel way, is the heart of the inventive process. As the Federal Circuit has held:

> "'Most, if not all, inventions are combinations and mostly of old elements.' Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue."

Rouffet supra, at 1357.

There are legions of patents awarded for systems whose sole difference with the prior art is doing something better, faster, or more cost effectively. The Examiner's conclusion based on purported motivation to combine that would have led the person of ordinary skill to discover the claimed inventions was legally wrong.

Furthermore, there is no suggestion as to where there would be any cost savings – the Examiner doesn't suggest omitting components or any operations savings. In fact the Examiner's statement regarding reduced latency in retrieving data from servers is erroneous because the private VLAN is primarily used to distribute multimedia content to and not from the servers as well to provide better security for distributing that content.

The Examiner's rejection has also not addressed the claim limitation directed to a public VLAN added in the previous amendment. As pointed out above, all submitted evidence must be considered. This additional limitation must also be considered in the combination of Hartsell and Voit. Applicants' claimed dual VLAN or bus architecture is never disclosed in Hartsell which only has a single distributed interconnection shown as distributive interconnection 1080 in Hartsell's Figures 1 and as "distributively interconnected control/data path 315" in Hartsell's Figure 6 (Harsell, paragraph 208). Voit also never discloses a VLAN with the public access of Applicants' internal public VLAN.

The Examiner has also overlooked the fact that Hartsell's content delivery system has a fundamentally different architecture than Applicants' edge node. Specifically, there is no central controlling entity like the "controller" of Applicants' newly amended claim 1. Instead, all the components operate in a peering arrangement with a distributed connection system that allow a number of simultaneous communications among different components. This difference is summed up best in Hartsell's paragraph 111:

> "The content delivery system 1010 described above is configured in a peer-to-peer manner that allows the various engines and modules to communicate with each other directly as peers through the distributed interconnect. This is contrasted with a traditional server architecture in which there is a main CPU. Furthermore, unlike the arbitrated bus of traditional servers, the distributed interconnect 1080 provides a switching means which is not arbitrated and allows multiple simultaneous communications between the various peers." (emphasis added)

As evidenced in the paragraph above, Hartsell's content delivery system does not have a controller to operate the edge node (Applicants' specification,

page 29, line 18). Instead, each piece of his system can operate independently. Hartsell paragraph 52 states "Thus configured, content delivery system 1010 is capable of providing multiple dedicated and independent processing engines that are optimized for networking storage and application protocols, each of which is substantially self-contained and therefore capable of functioning without consuming resources of the remaining processing engines." (emphasis added) The independent operations of these "content delivery engines" is very different from that of Applicants' edge node in which content processing and command execution is performed by the controller.

Applicants respectfully remind the Examiner that, as stated in MPEP § 2141.02, "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention" (emphasis in original). In disclosing multiple independent operating engines without a central controller, Hartsell teaches away from Applicants' edge node design of claim 1, and would not have provided any motivation to combine; indeed, it directly counters any possible motivation.

The depth and breadth of Applicants' controller functionality in content processing and command execution is detailed on pages 31 – 46 of Applicants' specification and must be included in the Examiner's analysis. As explained in MPEP § 2141.02, Applicant's invention must be considered in its entirety:

> "In determining whether the invention as a whole would have been obvious under 35 U.S.C. 103, we must first delineate the invention as a whole. In delineating the invention as a whole, we look not only to the subject matter which is literally recited in the claim in question ... but also to those properties

> of the subject matter which are inherent in the subject matter *and* are disclosed in the specification. . . Just as we look to a chemical and its properties when we examine the obviousness of a composition of matter claim, it is this invention *as a whole,* and not some part of it, which must be obvious under 35 U.S.C. 103." (Citations omitted; underline added).

Without a controller, Hartsell's content delivery system is missing one of the key elements of Applicants' invention, further invalidating the combination of Hartsell and Voit resulting in Applicants' invention.

Because of the significant architectural differences between Hartsell's edge node and that of Applicants' currently amended claim 1, as well as Voit's teaching away from Applicants' invention (i.e. the resources are physically separated from each other), Applicants believe that the currently amended claim 1 is, therefore, distinct from the prior art and respectfully request that it be allowed.

Claim 2 discloses the limitation of enclosing the edge node in a single equipment rack. Because this claim depends from claim 1, it would not have been obvious for the same reasons as claim 1 would not have been obvious. Therefore, Applicants' respectfully request that claim 2 be allowed.

In rejecting claim 3, the Examiner has cited paragraphs 0011 and 0207 in Hartsell. Because currently amended claim 3 includes similar limitations to claim 1, Applicants believe it is distinct from the prior art for the same reasons as claim 1. Therefore, Applicants' respectfully request that claim 3 be allowed.

Conclusion

For the foregoing reasons, Applicants submit that the Examiner's rejection of the claimed invention was incorrect and the claims should be allowed.

Date: February 28, 2006

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